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THE "HOUSE OF CHILDHOOD": A NEW PRIMARY SYSTEM.[1]

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I.

Within the past five years psychology has made two important contributions to education. One of these is a set of tests for measuring the mental growth of children and comparing mental with physical age. The other is a new system of primary education. The Binet-Simon tests have already been widely used in this country; but the *Casa dei Bambini,* a modification of the kindergarten devised by Maria Montessori, is as yet scarcely known in America.

The Case dei Bambini were first started by a Roman society which owns some 400 model tenements and apartment houses. Its buildings are constructed on approved sanitary lines, and every effort is made to better the condition of the tenants.

In 1906 this Association decided to start schools and playgrounds in its houses for children between three and seven years old, that is, below the public school limit. Dr. Maria Montessori was asked to develop a program. The choice was especially fortunate. Dr. Montessori, after taking her degree in medicine, was for some years connected with the Psychiatrical Clinic at Rome, where she made a specialty of feeble-minded children. Basing her work on Séguin's system, with modifications of her own, she was unusually successful in training her pupils. It occurred to her then that some of her

[1]Read before the New Jersey State Pediatric Society, October 28, 1911.

methods might with advantage be applied to normal children. She left the Clinic to make a special study of experimental psychology at the University of Rome, at the same time carrying out pedagogical investigations in the primary schools. It was then that she was asked to superintend the starting of the proposed Houses of Childhood.

Dr. Montessori brought to her new work an unusual combination of practical experience and theoretical knowledge. But over and above these she possessed good judgment and a sound scientific sense, which enabled her to develop an original and workable system of elementary education. Her method of instruction and its underlying principles are described in her volume on scientific education, an English translation of which is soon to appear.[2] After examining the schools in Rome last summer and studying the method as explained in Dr. Montessori's book, I am firmly convinced that the success of the system is due to its sound psychological basis. It deserves the careful attention of teachers and others interested in the psychology of childhood.

The first of these schools was started in January, 1907, in one of the poorer tenements. Since then a number of others have been added, one in a better-class apartment house. Each school belonging to the society serves the inmates of a single tenement or block, and the schoolroom is in the building itself. Each is in charge of one teacher, assisted by a single helper. There were about 50 children in the school we visited. Parents going to work in the morning leave their children in the schoolroom and get them again when they return at night. The system has already yielded remarkable results. Without

[2] MONTESSORI, M. *Il metodo della pedagogia scientifica applicato all' educazione infantile nelle case dei bambini.* Citta' di Castello: Tip. S. Lapi, 1909, pp. 283. The present paper is based largely on this work. Translation by Miss Anne E. George, under the title *Scientific Pedagogy*, New York: Frederick A. Stokes Co., 1912. Teachers should examine also Montessori's *Antropologia pedagogica* (Milan: Vallardi), which is of less interest to psychologists. See also, TOZIER, J. *An Educational Wonder-Worker. The Methods of Maria Montessori*, McClure's Magazine, May, 1911, 37: 1-19: *The Montessori Schools in Rome*, ibid, December, 1911, 38: 123-137; and *The Montessori Apparatus*, ibid, January, 1912, 38: 289-302. SMITH, THEODATE L. *Dr. Maria Montessori and Her Houses of Childhood*, Pedagogical Seminary, December, 1911.

drudgery or forcing, the children reach attainments quite unusual for their age.[3]

What the psychologist first notices in examining Montessori's system is that it is founded on a true conception of the child's mental processes. Motor habits are developed from instinctive motor tendencies; knowledge and habits of thought are built up by association. A second point, of special interest to the sociologist, is the influence of the schools on the community. Especially in the poorer dwellings the lessons of politeness, self-control, and individual initiative react upon the parents, and count as an uplifting factor in the social life. The daily program is as follows:

From 9 to 10, lessons in deportment and self-help. The children are taught to dress and undress themselves; to wash themselves; to keep their clothes clean and neat; to greet one another and the teacher politely; to wipe their feet before entering the room; to move about the room without tramping or brushing against the furniture. They are questioned about their doings at home—how they greeted their parents, what they talked about, what they had for the evening meal, with incidental advice if anything injurious was eaten. This instruction lays the foundation for good manners and sound living.

From 10 to 11 is the hour for intellectual training, which will be examined in detail presently. There follows a half-hour of simple gymnastics designed to cultivate grace in movement, healthful poise of body, and ease in carrying objects or handing them to others. From 11.30 to 12 is set apart for luncheon, with a short period of prayer. From 12 to 1 the children play without supervision. After this for another hour the play is supervised, and games are taught them. If weather permits, this takes place in the open air. The period from 2 to 3 is devoted to manual training, drawing, molding. The final hour up to 4 is devoted to group gymnastics and singing. There are plants and domestic

[3]Since the schools have become firmly established Dr. Montessori has given up her direct supervision over them. She is a regular lecturer at the University of Rome with the title of "Professoressa," and is engaged in training teachers who expect to use her system. She still retains charge of one Casa dei Bambini independent of the building society.

animals in the play-yard, and these are visited, cared for, and observed. The aim of the school is practical training, every step of which is of real value for the future.

Teachers may ask whether this program is not beyond the capacity of children of these ages—whether interest can be sustained—whether the work element does not dominate too much over the play. This criticism seems plausible before visiting the school, but I was soon convinced that Montessori's methods are effective in maintaining interest without undue fatigue.

An important factor in securing the children's sympathetic co-operation is the system of discipline, which contains two novel features.

First, the children are subject to no drill. They sit on low chairs at small tables, which they often move to another position. They come and go at will. They are not compelled to perform tasks. If attention flags, the subject is changed. In this way they are taught only what they are eager to learn; at the same time the aim is to interest them in studies usually taught at a later age. During our visit the children spontaneously wrote sentences and drew pictures of animals, engines, aeroplanes, and all sorts of objects with chalk on their slates (excellent representations for the most part), and brought them up in rapid succession for our inspection. They were practicing and learning unconsciously. A large part of the work is done at the children's own initiative; they teach one another, and the teacher's function is often little more than supervisory.

Another striking feature in Montessori's theory of discipline is the absence of reward and punishment. There are no prizes. The children are not praised for any unusual attainment. The pleasure of accomplishment is deemed a sufficient reward. Nor on the other hand are they reprimanded or punished for their failures. If a child hesitates or fails, the teacher passes to something else without comment, on the theory that attempting to correct a mistake would fix the error in the child's mind by association. The plan serves to reassure the timid, and Montessori reports that bad temper and mischief usually yield to the treatment also. Sometimes,

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of course, extreme measures are necessary. The naughty child is then treated as a moral defective, not as a sinner. He is not whipped nor given any mark of disgrace, but on the other hand he is not included in the exercises. He is regarded with pity and shown a certain amount of consideration like an invalid. In every case, we are told, the child so treated soon overcomes his mood and is eager to be "well" again.

A cardinal principle in the new method is the brevity of the instructions given. Montessori is thoroughly opposed to the plan of attracting a child's attention by telling a story and leading gradually up to the point at issue. She believes it merely distracts and confuses him. Her own system tends to the opposite extreme. In teaching the distinction between warm and cold (one of the earliest exercises), the teacher merely dips the child's finger in a basin of water, saying, "Warm," then in another, saying, "Cold." Possibly the instruction is repeated—the child's finger is placed again in each, with the words, "Warm," "Cold," "Warm," "Cold." Nothing is said to distract the child's attention from the one point to be learned. No unnecessary words are used.

II.

The program of intellectual teaching is of special interest to the psychologist and teacher. Writing and reading are the culmination of a long series of sensory and muscular training. Montessori believes that every one of the senses, but especially the sense of touch and the kinæsthetic sense, can be developed to a far higher degree than we realize. One of the first exercises is learning to recognize objects by touch alone. This is accomplished by blindfolding the child and having him touch certain objects, at the same time telling him what they are. A piece of sandpaper and a piece of glazed cardboard are placed in front of him, and as he touches each in turn he is told that it is "rough" or "smooth." Hard and soft, heavy and light, are distinguished in the same way. The lesson soon becomes a game in which the child is eager to guess the thing submitted. Then samples of dress goods

are given and he gradually learns to distinguish by mere touch between silk, velvet, satin, wool, cotton, and linen, and between different grades of texture in each. The sense of form is taught in the same way. Cubes, oblongs, and other solids are presented, and he learns to recognize them by touch and the muscle sense, and place them correctly in the form-board. The senses of taste and smell are similarly developed, but not to so great an extent, on account of their lesser value in life.

The perception of colors is trained as follows: 64 pieces of stuff of different colors and shades are placed before the child; three samples, strikingly different, are selected as standards. He is told to put each piece near the sample which it most resembles. In connection with the sense of hearing the class is given a lesson in silence. The children draw the curtains and make the room quite dark, then sit noiseless in their seats. After a moment the teacher whispers the name of some child, who at once gets up quietly and tiptoes out of the room; then another and another is called until about a dozen are standing in the hall; meanwhile everyone in the room remains as still as possible.

After the training of the senses has progressed somewhat the children are taught the *names* of the colors, forms, etc. At the same time they are trained in exactness of the motor functions, including distinct articulation.

Montessori insists that the aim of education, especially at the start, is to train a child's energies along natural lines—to improve the motor and perceptual powers already present, rather than start abruptly upon something new. These exercises bring about a refinement of the child's perception. Rough and smooth, heavy and light, warm and cold, red and blue, may be distinguished from the start. But by gradual steps the child is trained to notice finer and finer degrees of difference.

The teaching of writing falls into three distinct periods. First, practice in holding and wielding the pen; then exercises in associating the tactual-motor form of a letter with its name and visual form; finally, the combining of letters into syllables and words.

(1) In the preliminary training no letters are used. The first step is to practice filling in simple geometrical forms. One of the blocks from the form-board is given the child. He places it on his paper or slate and draws an outline around it. Then removing the block he fills in up to the outline with a colored pencil or chalk. This gives him practice in holding the pencil and controlling it. The child is soon able to fill in the figure without over-running the boundary. Next he learns to draw the outline free-hand.

(2) Then comes the second stage, the learning of letters. Montessori uses a set of letters cut out of sandpaper and pasted on smooth rectangular cards. The letters are script, 8 cm. in height. Capitals are not used till later. The most important part of this training consists in learning to associate the name of a letter with the *writing movement*, as well as with its visual appearance. The child looks at the sandpaper letter and at the same time runs his fingers over it, making just the movements he would use in writing; he is told that this movement is the letter *a*, *b*, etc., These exercises are continued as a game till the child has learned to recognize each letter by the movements required to reproduce it.

While these muscular exercises are proceeding the child is practicing the other associations which are needed. The teacher says, "Show me an *o*; show me an *n*." In this way the child learns to recognize the visual form of each letter and associate it with the name. Conversely, the teacher points to a letter and asks what it is. All these exercises serve to train the muscular memory, visual memory, and name memory of letters and establish associations between them. The child is now prepared for acutal writing; but the purpose of the course is to teach him *words*, rather than letters, which convey no meaning.

(3) The third and final stage, then, consists in combining letters into syllables, words, and phrases. In the first place cardboard letters are placed in a row and the child is asked to repeat the sounds. *M a* is first pronounced *m*, *a*, then as a single syllable, *ma*. This leads naturally to the converse problem. A word (e. g., hand, in Italian, *mano*) is spoken slowly and distinctly, "m-a-n-o," and the child finds the proper letters

in the box and places them in order. From this to the writing of words with chalk or pen is a simple step. The child who can build up words with cardboard letters soon finds it easier to trace them on slate or paper. He already knows the movements required to form them all.

Once the idea of writing is grasped, the children throw themselves into it with terrific zeal. They eagerly write down word after word, covering their slates and often the floor of the courtyard. And from this they pass quickly, and of their own accord, to the writing of sentences. On account of the careful preliminary training in the motor equivalents they form letters more accurately than the ordinary child, who is merely attempting to imitate a visual copy. The words which I actually saw written by children of 5 and 6 were far more regularly formed than those of most 10 or 12-year-olds taught in the ordinary way. Moreover, the act of writing really interests the child, and he is constantly practicing it and improving his chirography. Whereas copy-book writing is a task which a child usually tries to shirk; he never thinks of practicing it beyond school hours.

In the new system *reading follows writing* instead of preceding it. The children already know how to pronounce written words, but this is not "reading" according to Montessori. By *reading* she means the *reception* of ideas from visual symbols, whereas children at this stage merely repeat orally the ideas they have gained through graphic expression.

Learning to read detached words is a simple step: The teacher has a number of cards on each of which is a word in script. A child is asked to pronounce one of these. At first he gives it letter by letter, then he is told to repeat it faster, so as to make a word. The words selected are names of well-known things, and as soon as the child recognizes what he has pronounced he points to the object. The next step is to read phrases. The children soon read off sentences with considerable fluency; but they do not understand much of what they read. They are merely translating the visual symbols into spoken language without grasping the meaning.

The transition to actual reading formed quite a dramatic episode in the first instance. Montessori was writing phrases

on the blackboard, which the children read aloud in unison. At length she wrote, "Do you love me?" The children read the phrase aloud as usual, and she looked at them inquiringly. Suddenly they caught the idea and shouted, "Yes, yes!" She continued writing, "Well, then, keep silence and be ready." The children read this aloud: at once they became quiet and waited for the next step. Then she began a communication in writing, which the children read *in silence,* their attention now riveted upon the import of the sentences. Following her usual plan, the message involved *action*: "Close the shutters of all the windows and open the door; then wait a moment and arrange everything again as you found it." The children understood and obeyed the directions. Reading had acquired a new value. It was no longer merely a mechanical expression, but a means of acquiring ideas. The change came when they learned to check the impulse to read aloud. In place of the association between written symbols and speech came an association between written words and ideas. It was not necessary to begin with short words and easy phrases, for the training had made all words equally easy.

It need hardly be said that the parents were amazed at the result. The four-and-a-half-year-old son of an official who was being taught according to the Montessori system, astonished his father one morning by spontaneously reading the mail which lay open on the breakfast table.

The children at the Case dei Bambini are also initiated into the rudiments of arithmetic. They learn the simplest numbers without special instruction. Their attention is called to the fact that two buttons are missing on a dress or that three children sit together at a table. The meaning of numbers is taught more precisely by games with toy money in which they make change. This gives them considerable practice in counting.

The next step is to emphasize the number in place of the objects. The material for this is a series of sticks; the shortest is 1 dm. long, the next 2 dm., and so on up to 10. On each stick the dm. lengths are shown by alternation of colors. For example, the 3 dm. stick is red, blue, red; the 4 dm. red, blue, red, blue. Starting with the shortest stick, which is called

"1," the child places the next longer beside it with one end flush, the other end projecting. This stick is called "2." In the same way stick 3 is placed next to stick 2, and so on up to 10. At one end the edges are even, at the other each stick projects 1 dm. beyond the preceding. The children learn to associate the names 2, 3, 4, etc., with the proper number of extensions over the unit stick.

The next step is to associate written numerals with quantities. Montessori uses a board divided by raised cross-pieces into several compartments, each labeled with a numeral. The game consists in placing the right number of objects in the compartments—that is, as many in each compartment as the numeral it bears. Then they pass to a game in which the child is handed a folded slip of paper bearing a numeral, and is told to bring that number of objects to the teacher. At this stage the meaning of zero is taught. The pupil who receives the zero is often visibly perturbed at having nothing to do in the game.

The children are now ready for addition. The sticks are arranged in order from 1 to 10. The child takes the 1 stick and puts it end to end with the 9 stick, so that the two together are equal to the 10 stick. Thus he learns that "9 plus 1 equals 10." Next, the 2 stick is placed at the end of the 8 stick,—"8 plus 2 equals 10." When they come to the 5 stick they turn it along the middle end, saying, "2 times 5 equals 10." Subtraction is taught by reversing the process: "10 minus 4 equals 6," etc. All combinations of the first nine digits are taught.

In passing to numbers above 9, the chief difficulty is to make the children understand the decimal notation. Printed numbers from 0 to 9 are used. The child places the proper number opposite each stick from 1 to 9, and when he comes to 10 he is told to begin with 1 again, putting a zero after it to indicate its new position. 11 is indicated by substituting a 1 for the 0, and so on up to 20. They are taught to add, subtract, multiply and divide within these limits. By the time they leave the school most of the children can count up to 99. Finally, they are given the number 100, which always excites their interest.

III.

At the Case dei Bambini every effort is made to have the children work out their own education. Self-reliance, initiative, self-control, are fostered, and as a consequence the pupils have a poise and determination not often found at a much more advanced age. Apart from other results this in itself is well worth attaining. If there is any forcing it comes from within the child, not from without.

The program of studies and the methods of teaching at these schools challenge our system of secondary education as well. They indicate that the present curriculum needs thorough revision. It is founded on a faulty psychology; it does not consider sufficiently what a child is fitted to assimilate at any given stage of mental development. The younger a child, the less developed are his powers of thought and reasoning. On the other hand, young children are exceedingly quick in learning through temporal and spacial associations.

A child from 2 to 8 can learn four or five languages without effort; he can get such a grasp upon the construction of each that he retains the "feel" of its idioms all his life. If the learning of a language be delayed beyond the age of 15 most persons fail to catch its spirit. It never becomes second nature. Moreover, as one grows older the acquisition becomes more of a task.

In the case of logical disciplines just the opposite is true. If a child be started in arithmetic too young he wastes many precious hours in effort and makes little headway. I do not refer, of course, to learning addition and multiplication *tables*. This involves merely associative acts, and the earlier begun the better. But the application of these tables to practical problems is beyond the mental capacity of most young children. Whereas, if a child knows his tables by heart, at the age of 10, practical work in mathematics advances with comparatively little difficulty.

The psychologist would naturally conclude, then, that children should be taught languages and other memory disciplines at a very early age, and that mathematical and analytical studies should be reserved till later. I confess, however, that I was not prepared for the radical application of this principle

which Montessori has made. I should not have expected to find reading and writing within the capacity of the average child of 4 or 5 years old. And yet, when we examine the progressive development of studies at these schools, we see that these attainments are reached naturally and easily.

It would be interesting to apply the Binet-Simon tests to children taught at the Houses of Childhood. The Montessori system leads to unusual *attainments*. Does it produce unusual *functional growth* as well?

A TENTATIVE REVISION AND EXTENSION OF THE BINET-SIMON MEASURING SCALE OF INTELLIGENCE.

Part II. Supplementary Tests. 1. Generalization Test: Interpretation of Fables.

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Experiments made by one of the writers with this test several years ago, led him to believe that the interpretation of a series of rightly selected fables would afford a valuable indication of intelligence. After a careful search 20 fables were chosen for preliminary trial in the hope that from them 10 or a dozen might be found offering progressive degrees of difficulty and hence lending themselves to serial arrangement in the form of a scale. Most of them were taken from Aesop, and will be recognized by the following titles:

1. The Boy and the Filberts.
2. The Fox and the Crow.
3. Mercury and the Woodman.
4. The Milkmaid and Her Plans.
5. The Ass and His Shadow.
6. The Farmer and the Fox.
7. The Stork and the Cranes.
8. The Stag at the Pool.
9. The Eagle and the Tortoise.
10. Hercules and the Wagoner.
11. The Father, His Sons and the Rods.
12. The Jackdaw and the Doves.
13. The Ants and the Grasshopper.
14. The Fish and the Pike.[1]
15. The Ape and the Carpenter.
16. The Hermit and the Bear.
17. The Fox and the Boar.
18. The Husbandman and His Sons.
19. The Goatherd and the Wild Goats.
20. The Laborer and His Three Wishes.

These were given as a mass test to all the pupils of a schoolroom at one time. The regular period for a recitation in literature was employed. E distributed among the pupils blank sheets with numbered spaces in which the pupil's interpretations were to be writen. Then taking his position in the front of the room E stated that he was going to read some fables, reminded the pupils that a fable is a little story which

[1]For previous use of this test see Whipple's Manual of Tests, p. 454-457.

is meant to teach a lesson, and finally instructed them to write down after the reading of each fable the lesson which they thought it was meant to teach. After giving the test to about 40 pupils it became evident that the series was of very uneven value and that some of the fables too closely resembled others in the series. The list was accordingly shortened to eight, containing the following fables presented here in the exact form in which they were used.

FABLES.

I. The Milkmaid and Her Plans.

A milkmaid was carrying her pail of milk on her head, and mused thus: "The money for this milk will buy 300 eggs. The eggs will produce at least 250 chickens. With the money which the chicks will bring I can buy a new gown. In this dress I will go to parties with the young fellows, who will all propose to me, but I will toss my head and refuse them everyone." At this moment she tossed her head in unison with her thoughts and dashed the pail of milk to the ground, and all her imaginary schemes perished in a moment.

II. Mercury and the Woodman.

A woodman once dropped his axe into a deep pool and sat on a bank lamenting his loss. Mercury appeared, plunged into the pool and brought up a golden axe, and inquired if this were the one lost. When the man denied this, Mercury disappeared beneath the water a second time and brought up a silver axe. When the man said this was not his, Mercury dived a third time and brought up the right one. The man with joy claimed this, and Mercury was so pleased with the man that he gave him the gold and silver axes also.

III. Hercules and the Wagoner.

A man was driving along a country road, when the wheels suddenly sank in a deep rut. He did nothing but look at the wagon and call loudly to Hercules to come and help him. Hercules came, and thus addressed him: "Put your shoulder to the wheel, my man, and goad on your oxen." He then went back and left the driver.

IV. The Boy and the Filberts.

A boy put his hand into a pitcher of nuts and grasped as many as he could, but was unable to get his closed hand out of the neck of the pitcher. Unwilling to lose the nuts, he burst into tears, but still held on to the nuts.

V. The Eagle and the Tortoise.

A tortoise complained to the birds that no one would teach her to fly. "I will teach you to fly, then," said the eagle, and he took her almost to the clouds, when suddenly he let her go, and she fell to earth and dashed her shell to pieces on the rocks.

VI. The Ants and the Grasshopper.

A grasshopper which had sung merrily all summer was almost perishing with hunger in the winter. So she went to some ants that lived near, and asked them to lend her a little food which they had put by. "What did you do all summer?" they asked. "Why, all day long and all night long, too, I sang, if you please," answered the grasshopper. "Oh, you sang, did you?" said the ants, "Now, then, you can dance."

VII. The Fox and the Crow.

A crow, having stolen a bit of meat, perched in a tree, and held it in her

beak. A fox, seeing her, wished to secure the meat, and thus addressed her: "How handsome you are! And I have heard that the beauty of your voice is equal to that of your form and feathers. Will you not sing for me that I may judge if this be true?" The crow was so pleased that she opened her mouth to sing, and dropped the meat, which the fox immediately ate.

VIII. The Stork and the Cranes.

A farmer set some traps to catch cranes who were eating his seed. With them he caught a stork. The stork begged the farmer to spare his life, saying the farmer should have pity on his broken leg, that he was a bird of excellent character, and that he was not at all like the cranes.

The farmer laughed and said, "I caught you with these robbers, the cranes, and you must die with them."

Te secure norms of performance for these eight fables they were presented in the above described manner to about 350 pupils from the fourth to the eighth grade, inclusive, in 14 rooms of the Palo Alto and Mayfield schools. The data obtained from these 350 cases may be considered thoroughly representative up to 13 years.

Scoring.—The difficulty of finding a method of scoring which does not give too large play to the personal equation is a serious criticism of the fables test. After experimenting with a number of methods the following system was adopted as the one best suited to bring out objective differences and to call attention to certain types of answers significant for clinical purposes:

(a) A completely generalized and entirely relevant reply—5 units.

(b) A generalization, quite plausible but slightly differing from the correct one, or else a correct statement mostly generalized but not perfectly free from the concrete—4 units.

(c) Correct idea stated in purely concrete terms—3 units.

(d) An irrelevant generalization—2 units.

(e) A reply in concrete terms with just a trace of relevancy—1 unit.

(f) No response, or an entirely irrelevant concrete statement—0.

The following samples of responses together with the scores assigned them will make this clearer.

Fable I. The Maid and the Eggs.

Score 0. "She wanted to be dressed nice and be praised."

Score 2. "Not to carry things on the head." "Not to be selfish." "Not to boast."

Score 3. "If the maid had not planned so far ahead she would not have dropped her milk." "Don't make schemes for the future while you are carrying milk."

Score 5. "Don't count your chickens before they are hatched." "Not to build air-castles." "Don't plan too far ahead."

Fable III. Hercules and the Wagoner.

Score 0. "Hercules was not kind." "Hercules was selfish."

Score 2. "Teaches politeness." "Teaches not to be mean." "To do as you are told."

Score 3. "The lazy man should get out and try to push the wagon out himself." "When you get stuck in the mud, don't call for help, but try to get out yourself."

Score 5. "God helps them who help themselves." "Teaches us to help ourselves before we ask others to help us." "Don't depend upon others."

Fable VII. The Fox and the Crow.

Score 0. "The fox wanted the piece of meat." "The crow ought not to have tried to sing till she had swallowed it."

Score 2. "Not to be stingy." "Not to steal." "Think before you act."

Score 3. "The crow was flattered by this speech." "The crow was too proud of her voice." "If the crow had not been so flattered she would not have lost her meat."

Score 5. "Do not let people flatter you." "Don't listen to praise."

Fable VIII. The Farmer and the Stork.

Score 0. "The farmer ought to have let the stork go." "The farmer was a bad-tempered man."

Score 2. "To be merciful." "Do not kill animals." "Don't blame the other fellow." "Never go into traps." "Not to tell lies." "Take what you get without squealing."

Score 3. "The stork should not be caught with bad people like cranes." "The stork was caught in bad company and had to be treated the same."

Score 5. "Keep out of bad company." "You are judged by the company you keep."

Scoring is made somewhat easier if we do not try to distinguished quite so many grades. It would be convenient, and not unreasonable, to combine the two groups here scored 0 and 1, and also the two groups scored 4 and 5. This leaves four types of interpretation, which usually are not hard to identify: The irrelevant (or almost irrelevant) concrete answer, the incorrect generalization, the relevant concrete

statement (*i.e.*, statement of the main point in non-generalized terms), and the perfectly relevant (or at least very plausible) generalization. These could be scored 1, 2, 3 and 4, respectively, or 0, 1, 2, and 3, or 0, 2, 3, and 5. Until we know more about the significance of these different types of answers and their relative frequency at different ages we can not be certain as to the best quantitative expression for them. Reverting to the method of scoring fables employed in this study, it may be said that the six-grade scale is not as difficult as it looks, and in actual use, after a little experience on the part of the scorer, constitutes but a slight modification of the four-grade scale. This is seen in the tendency which develops with practice, to keep in mind the above described four chief types of performance and to make sparing use of scores 1 and 4, reserving 1 for a few replies which should be spared from score 0, and 4 for a few which, though pertinent and generalized, are not quite what is wanted. Elegance, grammatical correctness, spelling, etc., should have no weight in the scoring. On the other hand it is necessary to be discriminating as to essential thought in the response. The tendency of the inexperienced scorer is to give too much credit. For example, the response "teaches to be industrious" (Fable III) hardly deserves a perfect score since the idea involved is that of self help, a slightly different thing. Similarly with the response "teaches not to depend on others" (Fable VII), a reply which is fairly plausible and partly justified by the facts, yet does not express the essential point, which is that we should "lay up for a rainy day," "look out for tomorrow," etc.

More serious is the question of the quantitative values which should be assigned to the types, based as they are on qualitative differences. For illustration, opinion may differ as to whether the type of reply given under (d) should be scored above or below that given under (c). Which is the better performance; to generalize the fable situation incorrectly, or to see the main point of the concrete situation involved without generalizing its meaning? Judging from the distribution of scores as shown in Fable V the latter seems to be a better indication of normal intelligence. Though believing that the above method of scoring fables is the most serviceable that

has thus far been devised, we are ready to discard it when a better is suggested.

As to the personal equation in scoring, only a comparison of the scores given by several persons to the same performances will determine its range and therefore the reliability of grades assigned by one individual. This the writers hope to do later. Our experience in scoring fables convinces us, however, that any study of individual differences of judgment in assigning marks must take great precaution to secure scorers who thoroughly understand the system employed and have had some training in its use. As far as our experience goes we do not believe that competent scorers will often differ more than 5 units (or 12½%) in grading by this method a set of eight well chosen fables.

Much depends on the choice of fables. Some are objectionable because they tend to provoke equivocal answers, others because they permit several plausible interpretations. A desirable fable is further characterized by the following points: (a) It should give with increasing years a rapidly decreasing number of the scores of 0 and 1. (b) Scores 4 or 5, or 4 and 5 taken together, should steadily increase. (c) Score 3 should probably not be very frequent in the upper years. (d) The per cent. of incorrect generalizations, that is the ratio expressed by the number of 2's divided by the total number of 2's and 4's and 5's added together, should gradually decrease. By reference to Table V it will be seen that Fables I, III, and VIII meet fairly well all these requirements. Fable II is decidedly objectionable as regards (a) and (d), and not above suspicion on point (b). Fables IV and V are objectionable as to (d) and (a), while Fable V also fails in requirement (c). Fable VI is excellent except for a rather large number of 1's in the upper years. This sort of analysis has led to the inclusion of Fables I, III, VII and VIII for use in the revised and enlarged measuring scale.

By allowing 5 credits for each unit in the score an S's performance may be conveniently stated in per cent. On the basis of four fables, an S who scores 20 points earns 100%, the score 13 points means 65%, etc. For most purposes it is perhaps sufficient to judge an S's performance by his total score, however expressed, although in clinical diagnosis it will be found

very suggestive to note what individual scores have entered into the total. For illustration, 40% earned by scoring 2 (or 10%) on each fable does not indicate the same mentality as 40% earned by scoring 3 (or 15%) on each of two fables, and 1 (or 5%) on each of the other two. The former indicates a decided tendency to generalize incorrectly, probably a sign of rather mature stupidity. The second 40% indicates a tendency to think in terms of the concrete, possibly a sign of immaturity rather than stupidity. Only extended use of the fables, however, with all grades of normal, retarded and advanced S's will determine the exact significance of these and other types of performance. For purposes of a scale the total per cent. earned may provisionally be taken as the most significant.

Results.—Table V shows the distribution of the various scores for pupils of each age and for the four fables selected for use in the revised scale. Table VI summarizes the data for the different years.

TABLE V.

	Age.	Number.	Scores. 0	1	2	3	4	5	Total of 4 and 5.	Percentage of Generalizations Incorrect.[2]
	9	41	14	31	24	4	4	19	23	51
FABLE I.	10	53	13	22	20	4	9	30	39	34
The Maid	11	61	8	6	31	10	16	28	44	41
and	12	80	7	10	22	5	16	39	55	28
the Eggs.	13	73	5	4	18	8	15	47	62	22
	14	43	5	9	20	5	16	38	54	27
	9	41	14	7	19	29	12	16	28	40
FABLE II.	10	53	9	9	13	19	17	32	39	25
The Wagoner	11	61	5	6	15	13	20	41	61	22
and	12	80	3	12	12	11	21	39	60	17
Hercules.	13	73	0	5	15	12	18	47	65	18
	14	43	5	0	9	2	36	45	81	10
	9	41	19	27	34	14	2	2	4	90
FABLE III.	10	53	17	26	35	2	5	13	18	66
The Fox	11	61	8	15	44	8	8	16	24	65
and	12	80	11	17	32	6	15	17	32	50
the Crow.	13	73	11	16	27	3	8	32	40	40
	14	43	14	7	34	5	14	25	39	46
	9	41	36	19	31	5	2	5	7	81
FABLE IV.	10	53	21	24	24	2	4	24	28	46
The Farmer	11	61	16	11	21	6	11	33	44	32
and	12	80	15	15	22	5	7	33	40	35
the Stork.	13	73	8	8	14	8	14	46	60	19
	14	43	7	5	18	5	11	52	63	22

[2]The per cent. of incorrect generalizations for a given age is obtained by dividing the number of scores 2 for that age by the combined number of scores 2, 4 and 5.

TABLE VI.

Year.	Number.	Median Score.	Score Reached by Two-thirds.
9	41	35-40	25-30
10	53	45	35-40
11	61	50-55	45-50
12	80	55	45-50
13	73	70	55-60
14	43	70-75	55-60

We believe the "generalization test" will prove a usable addition to the scale. It presents for interpretation situations which are closely paralleled in human social relations. It tests the power to unravel the motives underlying acts and attitudes, to look behind the deed for the idea that prompted it. It gives a clue to the status of the social consciousness. This, if correct, is tremendously important for the diagnosis of the upper range of mental defectiveness. The criterion of the subnormal's unfitness for life outside of an institution is his ability to understand and appreciate social relations and to adjust to them. Failure of a subnormal to meet this criterion may lead him to break common conventions, to misunderstand people and to be misunderstood, to be considered disrespectful, sulky, stubborn, deceitful, or in some other way queer and exceptional. He is himself misjudged because he misjudged others. The skein of human motives is too complex for his limited intelligence to untangle. Again, the rectitude of the moral life is directly dependent upon the accuracy of the social judgment. If the latter is rudimentary, true morality is impossible.

Recent ethnological studies, such as those of Sumner, Westermarck, and others, as well as many investigations in child psychology, give added proof of the social origin of the moral judgment. It would be interesting to know what proportion of juvenile offenders have transgressed our codes because of continued failure to grasp the essential lessons presented by human situations, the comprehension of which is a necessary basis of truly moral action. The social relations of the home, school, street, etc., present for the intellectually normal an endless succession of moral situations. That is, these are moral situations if they are comprehended, rightly generalized. For those who do not comprehend them at all they have

no moral lesson. Into the same situations other children of somewhat higher mentality than the last named read a meaning perhaps, but often the wrong meaning. Their moral development runs askew because guided by an unreliable power of generalization. We are justified in suspecting the intelligence of the so-called "moral imbecile." The small child is always a moral imbecile for lack of any understanding of social relations. If he becomes a moral man it is because of years of daily, almost hourly, experience and training in picking the moral kernel out of life-situations. The more subnormal the child's intelligence the more insignificant his moral increment. What is meant is forcibly illustrated by such responses as the following, frequently found in our fables data:

Fable VII.

"Taught the crow to be wise and not to open her mouth when she had anything in it."
"The fox was slicker than the crow was."
"Not to be generous to people you don't know."
"Not to sing when you have anything in your mouth."
"To think before you sing." "Not to be forgetful."
"Where there's a will there's a way."
"To eat the meat and then sing." "How to be wise."
"Don't answer if your mouth is full."
"Look before you leap." "When you have a thing, hang on to it." "She should not have opened her mouth."
"Teaches us to look for tricks." "To finish one thing before we do another."

The above responses were given by pupils from 13 to 17 years of age, all of whom were retarded in school from 2 to 4 years. Similar illustrations were afforded by all the fables. It is hardly necessary to dwell further on the importance of the field here suggested for the further study of one of the most important factors in moral development.

Other points of excellence in the generalization test deserve mention. It does not need to be unduly complicated by language difficulties, as is always the case to greater or less degree in tests of ability to interpret poety. (See for example, Bonser's Reasoning Abilities of Children in the Fourth, Fifth and Sixth Grades, p. 8). Again, fables can certainly be

found of widely varying difficulty, although it must be admitted that our own quest for an extended series was not as successful as we had hoped. It will probably be difficult to find any which will prove very serviceable below the ninth or tenth year, and it is doubtful anyway whether a test of this nature would be significant before that age. We believe that the addition to our list of a few more difficult fables would make the test especially valuable at the upper end of the scale and help a great deal in the difficult task of extending the scale beyond 13 years. Finally, it should be said that this test is one which gives little opportunity for coaching. The child who has been given a number of such fables along with 20 or 30 other tests, can not bear away much accurate testimony as to what he has been put through, and even if he related a fable to another child the latter would not as a rule profit from the acquaintance thus gained. In fact we have found that an S's previous familiarity with the fables does not necessarily increase in the least his chance of winning a high score in our test. It was learned that in the fifth grade room tested by us, all of the 35 pupils had read some of the fables of our list and 12 of the pupils all of them within a few months preceding, but a careful comparison of their papers with others written by pupils of like age and advancement who had met none of the fables, disclosed no effects whatever of such familiarity. The case might have been somewhat different had the fables been taught to the children with the conscious purpose of pointing the moral, but even this effect, we are convinced, is easily overestimated. If the fable situation is beyond the child's power of comprehension the teaching is ineffective as far as moral lessons are concerned, and may not noticeably influence the reaction to the test.

From the above it is clear that the effective use of proverbs, mottoes, fables and other snatches of literature in the moral instruction of children is absolutely dependent upon their standardization according to difficulty of comprehension. Much, if not most, of school instruction in history and literature, has in the minds of those who make the curriculum, a moral purpose; but we do not know how much of this instruction is utterly futile as far as nourishing moral growth is con-

cerned. To make it effective, norms of children's power of comprehension and generalization must be established for different ages and for different kinds of subject matter. There is reason to suspect that in this field, at present, our schools are rife with precocious attempts at generalization. The problem becomes so much the more important in those countries where this type of moral instruction in the schools is purposely and universally adopted as a national system of developing morality, as in France.

(*Continued in the April number*).

QUALITIES OF MERIT IN SECONDARY SCHOOL TEACHERS.

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SUMMARY.

1. Among the high-school teachers compared, sex had little or no effect on teaching efficiency, except that women seem to have a slight advantage among the teachers whose qualities of merit were studied.

2. The best teachers are found in the oldest established subjects —Latin and mathematics.

3. Advanced work in college or university and professional training are important factors in successful high-school teaching.

4. Experience has an important place in modifying teaching efficiency, but does not seem to be so important as is sometimes thought.

5. Instructional skill, results, stimulation of individuals, intellectual capacity, and discipline rank highest among the specific qualities of merit.

This investigation is similar in character to one conducted by Professors Ruediger and Strayer concerning qualities of merit in elementary teachers.[1] The specific qualities of merit are taken from a list proposed by Prof. E. C. Elliott of Wisconsin as a basis of measuring teaching efficiency.[2]

Method.—Blanks were prepared having on one side columns headed:

1. Rank in General Merit.
2. Sex.
3. Subjects Taught.
4. Preparation.
    1. High School, College or University.

[1]Journal of Educational Psychology, May, 1910, Vol. 1, No. 5.
[2]Published by the Department of Public Instruction, Madison, 1910.

2. Professional (Normal, Teachers' College, or Educational Courses).

5. Years of Experience.

Rank in General Merit was indicated by capital letters A, B, C, etc. There were spaces in these columns for twenty-three teachers.

On the opposite side of the sheet was a list of twenty-one specific qualities of merit, with twenty-three numbered columns beside it in which to indicate the rank of any individual in any quality.

The list of single qualities follows:

Physical—
1. General appearance.
2. Health.
3. Voice.
4. Energy and endurance.

Moral—
1. Self control.
2. Sympathy—Tact.
3. Adaptability.
4. Sense of humor.
5. Fair mindedness.

Administrative—
1. Initiative.
2. Executive capacity.
3. Co-operation.

Dynamic—
1. Intellectual capacity.
2. Instructional skill.
3. Governmental skill (discipline).
4. Studiousness.

Achievement—
1. Success of pupils (results).
2. Stimulation of individuals.
3. Stimulation of community.

Social Spirit—
1. Interest in life of school.
2. Interest in life of community.

The following directions were printed on separate sheet of paper and sent with each blank:

1. The teachers are to be ranked first in the order of their merit. Grades are not to be assigned. All that is wanted is relative position.

Thus—A will stand for the teacher best in general teaching ability, B for the second best, etc. Information as to sex, subjects taught, preparation, and years of experience is desired in this connection. Please indicate whether the teacher is a normal-school graduate, a university graduate, or both, or neither.

2. Letting the letters represent the different teachers, next rank them according to the various single qualities of merit, of which there are twenty-one on the opposite side of the sheet.

Thus—If A is best in General Appearance put the letter A opposite General Appearance in column one, if second, put in column two, and so on.

A letter of explanation and a stamped envelope for reply also accompanied each blank.

These blanks and requests for the information were sent to about 235 superintendents and principals. Reports were received from 38 high school in 14 States, most of them coming from the North Central and Middle Atlantic States. Twenty-seven reports were properly filled out in full or nearly so. Two reports were not filled out according to directions. Seven reports were filled out as to general merit and items on that side, ranking in specific qualities being too tedious or too difficult. One report had only four teachers compared, and was not used. The smallest number of teachers in any report used was five, the highest 23. The average number for the 27 reports was 12.7.

The value of any questionnaire investigation depends on the care with which the data are given. Notwithstanding the obvious difficulties in ranking a large number of individuals in each of the various qualities named, the writer believes it can be done, and that it has been done with a fair degree of accuracy in the cases used in these results. It would be a remarkably uniform corps of teachers in whom there was no difference. It is inconceivable that they should be all the same. It depends on the skill of the supervisor whether the difference is detected. The difficulty of the problem prevented any hasty or ill-considered reply, as those who did not have time to reply at least somewhat thoughtfully, replied only in part or not at all. Again, the method of correlation would discount slight variations from the true ranking.

Method of Correlation.—The method of correlation used in finding the coefficient of correlation between General Merit and the various specific qualities, and between the specific qualities themselves, was that used by Karl Pearson in finding the relationship between qualities not quantitatively measurable. The coefficient of correlation (r) is 1.00 when there is perfect relationship; that is when one quality is invariably accompanied in the same degree by the other related quality. When r is—1.00 the two qualities are mutually exclusive. When r = .00 nothing can be known about the relationship. All values of r, then, between .00 and 1.00 indicate

positive correlation, and values between .00 and — 1.00 negative correlation. Thus, r= .36 means that with a given amount of one quality there will probably be .36 of the related quality. The formula [3] used was:

$$r = \cos \frac{\sqrt{bc}}{\sqrt{ad} + \sqrt{bc}} \pi$$

in which

a = the number of cases in which individuals are above the median rank in both of the qualities compared.

b = the number of cases in which individuals are above in the first quality and below in the second.

c = the number of cases in which the individuals are below in the first quality and above in the second.

d = the number of cases in which individuals are below in both qualities.

Thus taking one report comparing General Merit and General Appearance:

Rank in General Merit.	Rank in General Appearance.
1	7
2	3
3	14
4	12
5	1
6	8
7	6
8	11
9	4
10	13
11	9
12	2
13	5
14	10

Comparing the rankings in the two qualities we see that the individual who ranked 1st in Merit ranked 7th in Appearance, the second ranked 3d, etc. The median is between 7 and 8.

[3] For an elaborate explanation of this method see K. Pearson, Philosophical Transactions of the Royal Society, Series A, Vol. 195, pp. 1-47.
See also Whipple, Manual of Mental and Physical Tests, pp. 38, 39.

Making a fourfold classification of these rankings we have Table I.

TABLE I.

Quality.		General Appearance.	
	Rank.	Above M.	Below M.
General Merit.	Above M.	4	3
	Below M.	3	4

Hence for this report

$$a = 4,\ b = 3,\ c = 3 \text{ and } d = 4.$$

Combining all the reports on General Merit and General Appearance we have Table II.

TABLE II.

Quality.		General Appearance.		Totals.
	Rank.	Above M.	Below M.	
General Merit.	Above M.	101.5	70	171.5
	Below M.	61.5	110	171.5
Totals.		163	180	343

$$a = 101.5,\ b = 70,\ c = 61.5,\ d = 110.$$

Substituting these values in the formula and solving we have

$$r = .36.$$

Leaving the specific qualities of merit to be correlated with General Merit later, let us see what relation sex, subjects taught, preparation, and experience have with teaching efficiency.

In these classifications where the Pearson co-efficient has not been worked out, I have divided the teachers arbitrarily into three classes, good, medium, and poor. By "good" is meant those ranked first or second; by "poor," those ranked last or next to last; by "medium," all others between these two. Because teachers are ranked last or next to last does not necessarily mean that they are really poor teachers. It simply means that of all the teachers with whom they were compared they were least good. I felt safe in making this classification because in any one quality it is quite likely that one or two teachers would be prominent either for the presence or absence of that quality, while it might be harder to distinguish between the others.

Sex.—The combined information in regard to sex and its relation to teaching merit is given in Table III.

TABLE III.

Item.		Males.	Females.
1.	Number	154	250
2.	Per cent. of total	38	62
3.	Good—Number	22	40
4.	" —Per cent. of total	5.4	9.9
5.	" —Per cent. of sex	14	16
6.	Medium—Number	108	172
7.	" —Per cent. of total	26.7	42
8.	" —Per cent. of sex	72	68.8
9.	Poor—Number	24	38
10.	" —Per cent. of total	5.9	9.4
11.	" —Per cent. of sex	15.5	15.2
12.	Pearson (r)	.00	.00

The statement sometimes made that men make better high-school teachers than women is not borne out by these results. In fact, if any difference is shown at all, it is slightly in favor of the women. Comparing items 2, 4, 7 and 10 we see that the men bear about the same ratio to the women in all, except that the women show a relatively larger per cent. of the total in the group called good than in the others. When items 5, 8, and 11 are compared, the men again show a smaller per cent. of good and a larger per cent. of medium and poor. It was possible for 62 or 40% of the men to rank first or second and only 14% of them did; while out of a possible 24% of the women 16% ranked in the first two classes. The Pearson coefficient, however, shows no relation between sex and teaching efficiency.

Subjects Taught.—Under this head the attempt has been made to find out the distribution of good, medium and poor teachers among the various subjects of the high-school curriculum. Sufficient data were received to compare seven of the common high-school subjects. Where a teacher taught more than one he was placed under the one given first. The following table shows the number teaching each subject and the number and per cent. of those teaching each subject ranked in the three classes.

TABLE IV.

Subject.	No.	Good.		Medium.		Poor.	
		No.	Per cent.	No.	Per cent.	No.	Per cent.
Latin	46	14	30.4	28	60.8	4	8.8
Mathematics ..	59	18	30.9	35	59.3	6	10.2
History	48	7	14.5	36	75	5	10.5
English	83	11	13.2	57	68.6	15	18.2
Science	62	8	12.9	44	70.9	10	16.2
Mod. Language	37	4	10.8	25	67.5	8	21.7
Commercial S.	33	0	0.0	25	75.7	8	24.3

The subjects are ranked in what seems to be the order of their relation to efficiency as indicated by the per cents. of teachers in the various classes. Mathematics and Latin are nearly the same in per cent. of good teachers, but Latin was placed first because it had a larger per cent. of medium and a much smaller per cent. of poor teachers than mathematics. There is a striking difference in the per cents. of good and poor teachers in Latin and mathematics, and science and modern languages. Why should Latin and mathematics stand so far ahead of the others in their relation to general merit? This may perhaps be explained by the fact that Latin and mathematics have been taught for so long that they have become well established as to method and content, and show little change from year to year, while the other subjects, especially science, are newer, and their pedagogy is not yet well worked out.

The writer believes that preparation plays a large part in this distribution. The effect is certainly shown by the condition in commercial teaching, and the value of advanced work is strongly suggested. Of the 33 teachers of commercial subjects, not one ranked first or second. Thirteen of them had had as high as college or university work, four as high as normal, and 16 had had only high-school or business-college training. Only three of the Latin teachers had had less than college or university work, and two of the three had had normal training or educational courses.

The training and education of the supervisors themselves may have something to do with their judgment. That is, if their education has been mostly along the traditional lines they would be better able to judge the excellence of Latin

and mathematics, whereas they might not be able to see the virtues in the science teaching if they were there.

The results indicate the necessity of better training for science, modern language, and commercial teachers, and also a more complete working out of the pedagogy of these subjects.

Preparation.—The information under this head was not given fully in all cases, so that little can be determined as to what part preparation plays in General Merit. Data from 36 reports were used, giving us 72 teachers ranked first and second. Sixty-five of these had had college or university work, 15 normal work, and 24 educational courses in summer school or university, while three had had no preparation beyond high school. It is worth noticing that of these three one had had 41 years of experience, one 32 years, and the third 30 years.

Of the 72 teachers placed last and next to last 63 had been in college or university, and only three in normal school. Twenty had had educational courses or special professional work, and ten had had neither college nor normal training. Of these ten, four had had work in business college or special training school. The average experience of the ten was 13 years, and their median 19 years.

The comparison is slightly in favor of those having professional training for high-school teaching. The effect of meager academic preparation has been pointed out in connection with the teaching of Commercial Subjects.

Experience.—The question to which a partial answer is given by this part of the data is this: How important is experience in modifying teaching efficiency? So much stress is laid on experience by superintendents and others in judging a teacher's qualifications for a position that it is interesting to get any information as to its real importance. Table V is its own best explanation. It shows the average and median years of experience for all, and for men and women separately, and also for the various groups of efficiency.

TABLE V.

	Men and Women.			Men.			Women.		
	No.	Av. Yrs.	Median. Yrs.	No.	Av. Yrs.	Median. Yrs.	No.	Av. Yrs.	Median. Yrs.
Good ...	68	11.8	10.1	20	10.25	10	40	11.6	9.5
Medium.	298	8.7	6.1	99	8.31	7.1	165	8.8	5.26
Poor ...	68	6.39	4.1	21	6.	4.5	38	8.	5.5
Total..	434	8.96	6.17	140	8.28	6.25	243	9.2	5.4

No teacher was ranked first or second who had had less than three years of experience.

The Pearson coefficient between General Merit and Experience was .43, with a P.E. of .053.

Both the table and the Pearson coefficient indicate a positive correlation between Experience and teaching efficiency. All averages and medians decrease with the rank in merit. All medians are below their corresponding averages, showing that the majority of teachers have less than the average years of experience. This is also shown by Table VI. The averages for men are lower than those for women, but the medians are higher, except in those ranked poor. If we considered only the averages of all the men and all the women we might conclude that the women stay in the service longer, but the medians would indicate the opposite. The medians would also tend to show that the women reach maximal efficiency sooner than men.

Another interesting comparison is made in Table VI, in which the years of experience are grouped by fives, except those beyond 20, and the distribution again made.

TABLE VI.

Years.	No.	Good.		Medium.		Poor.	
		No.	Per cent.	No.	Per cent.	No.	Per cent.
1-5	160	15	9.3	109	68.1	36	22.6
6-10	138	25	18.1	96	69.5	17	12.4
11-15	65	15	23.	42	64.6	8	12.4
16-20	29	6	20.6	19	65.5	4	13.9
21-46	28	6	21.4	20	71.4	2	7.2

It is to be noticed that there is a decided falling off in numbers between the second and third groups. Seventy per

Note—The total of men and women is greater than the sum of the men and women in the table, as use was made of some reports for the total in which sex was not specified.

cent. of all are in the first two groups. The increase in effiiciency is very great from 1 to 10 years, a little less decided from 10 to 15, and efficiency as indicated by the per cent. of good teachers falls off slightly from 15 to 46, but the medium group increases in that time.

The place which experience occupies when compared with other qualities is shown in Table VII. Although its coefficient is positive, it seems not to be so important as other qualities upon which less stress is placed.

The Correlations of the Specific Qualities of Merit with General Merit.—The list of qualities taken to be correlated with General Merit is not an exhaustive one, nor is this study, as a whole, exhaustive. Many such studies and many lists of qualities will have to be made and remade before we can know with much certainty what constitutes General Merit in its entirety. The list is merely suggestive. It includes points on various sides of the teacher's character, life, work, and that mysterious thing we call personality. Instead of using personality as one of the qualities we have broken it up into different possible components and tried to get something more definite and more easily understood. The combined results should give us the composite opinion of our correspondents as to which of these qualities are most important as exemplified in their teachers. They will give us the qualities not as they are in an ideal teacher, but the extent to which the qualities named are found in teachers actually in service.

The results obtained by combining the reports of ranking in these qualities are given in Table VII, which shows the Pearson coefficient, the Probable Error, the number of teachers compared for each quality, and the rank of each quality in the list.

The quality which ranks far above all others is Instructional Skill, with its correlation of .90. Next in order come Results and Stimulation of Individuals with their coefficients of .85 and .80, respectively. These three, with Intellectual Capacity .71 and Discipline .67, seem to be the single qualities deemed most important by supervisors, and are the qualities, perhaps, which are most likely to be determining factors in a high-

school teacher's success; all the other qualities, except General Appearance and Health, show high correlation with Teaching Efficiency. As a group the physical qualities rank lowest and the dynamic and achievement qualities highest. Superintendents are evidently looking for results. It will be noted that Experience ranks third from the last, which may indicate that Experience is not always so important as is maintained. The correlation of the moral qualities and the physical qualities of Voice and Energy with efficiency are high, but when compared with the other qualities they seem to be less important. The moral qualities are certainly as important as, if not more important, than administrative ability, and yet it seems to be the administrative side which is emphasized. The teachers are decidedly weak in Health and General Appearance. The low correlation of Health indicates either that good teaching is very hard on those engaged in it or that teaching does not attract a very strong class of people into its ranks,—or that the disadvantage of relatively poor health may be overcome by exertion.

TABLE VII.

	Rank.	r.	P. E.	Number.
General Merit and Physical—				
1. General appearance	21	.36	.059	343
2. Health	22	.18	.062	311
3. Voice	16	.50	.059	343
4. Energy and endurance	15	.51	.059	343
Moral—				
1. Self control	13	.52	.06	326
2. Sympathy—Tact	17	.45	.059	343
3. Adaptability	11	.59	.06	330
4. Sense of humor	19	.44	.059	343
5. Fair mindedness	18	.45	.062	310
Administrative—				
1. Initiative	9	.62	.06	330
2. Executive capacity	10	.62	.06	330
3. Co-operation	6	.66	.061	323
Dynamic—				
1. Intellectual capacity	4	.71	.06	328
2. Instructional skill	1	.90	.059	343
3. Governmental skill (discipline)	5	.67	.059	343
4. Studiousness	7	.65	.06	328
Achievment—				
1. Success of pupils (results)	2	.85	.059	343
2. Stimulation of individuals	3	.80	.06	325
3. Stimulation of community	14	.52	.066	276
Social Spirit—				
1. Interest in life of school	8	.64	.062	310
2. Interest in life of community	12	.57	.064	289
3. Experience	20	.43	.053	421

Other Correlations.—It would be possible, of course, but of doubtful profit to correlate every quality with every other quality, but only a few of the inter-correlations which promised interesting possibilities are given here.

Since Instructional Skill is so important, what are the qualities upon which it depends? Is it a matter of training, experience, or native ability? To see if this could be determined, Instructional Skill has been related with some of these possible modifying factors, and the results combined in Table VIII.

TABLE VIII.
Instructional Skill.

Correlated with	r.	P. E.	Number.
Intellectual capacity	.65	.06	328
Studiousness	.61	.06	328
Adaptability	.53	.06	330
Experience	.40	.061	322

If Intellectual Capacity is a quality which cannot be modified, it would appear that Instructional Skill depends very largely on native ability. But it is a point of great encouragement that it depends nearly as much on Studiousness. The coefficient of Experience is strikingly low campared with the others when we might expect in this case rather a high correlation.

Another much desired bit of information which might come from inter-correlations is that of the basis of Results. That is what the teacher is judged by largely, and Results are what the teacher himself wants. He wants to see the success of his pupils. Upon what do Results depend? In order to determine this, if possible, Success of Pupils was correlated with several qualities, with the following result:

TABLE IX.
Success of Pupils.

Correlated with	r.	P. E.	Number.
Instructional skill	.86	.059	343
Discipline	.74	.059	343
Intellectual capacity	.69	.06	328
Adaptability	.55	.06	330
Sympathy-Test	.51	.059	343
Experience	.50	.061	318

As we might expect, the success of the pupils depends most on the instructional skill of the teacher. Ability to keep order is more important than Intellectual Capacity.

When we compare these results with those from Ruediger and Strayer's investigation of elementary teachers we find points which tend to confirm the results of both, and yet if the findings in the two cases can be taken as typical of elementary and secondary teachers, there are differences which show some different conditions in the two.

All of our coefficients of correlation in the present study are higher than the corresponding coefficients of the earlier study. Thus our highest correlation is .90, theirs .56; our lowest is .18, and their lowest .04. This difference may be due to method of correlation, or to actual difference between the relation of these qualities to Merit in high-school and elementary teachers, though such a great difference is unlikely.

The quality which had highest correlation with teaching efficiency in elementary teachers was Discipline, with Instructional Skill and Initiative ranking second and third. The coefficients of Instructional Skill and Discipline were respectively .56 and .54 in their study, and .90 and .67 in the present investigation, showing the much greater relative importance of Discipline in the grades. Health and Appearance ranked lowest with elementary teachers, as they did with high-school teachers.

In the matter of Experience there are some differences, but the results tend to the same conclusion, namely, that Experience is an important factor in modifying teaching ability. No elementary teacher ranked first or second with less than five years of experience. Among high-school teachers three years was the minimum for good teachers. The average experience of elementary teachers for the first and second classes was 13 years, and for the last two classes 8.5 years. The average experience of high-school teachers for these corresponding groups was 11.8 years, and 6.39 years, respectively. The averages for the totals were 10 years for grade teachers and 8.96 years for those in high school. All of which would seem to show that elementary teachers remain in the profession longer than high-school teachers. This is shown also by the fact that of the elementary teachers 25% had taught less than 5 years, and 26% more than 14 years, while of the high-

school teachers 39% had taught 5 years or less, and only 13.9% more than 15 years.

Little direct comparison can be made as to preparation. It is noticed, however, that college graduates are predominantly the best high-school teachers, but are not particularly successful in the grades.

In conclusion I wish to acknowledge my very great indebtedness to the superintendents and principals who have furnished the original data for the results given here. It was no small task which was asked of them, and many such requests added to their already heavy work, makes their replies all the more to be appreciated. It is only from those nearest the actual teaching work that such information can be obtained, and it is to be hoped that they are contributing something which may in the end contribute a little toward easing the burden placed on them.

COMMUNICATIONS AND DISCUSSIONS.

CONTINUATION SCHOOL FOR GIRLS.

In our December issue atention was called to the program of the second annual meeting of the American Association for Study and Prevention of Infant Mortality, held at Chicago, November 16-18, 1911. The chairman of the section on education, Dr. Helen C. Putnam, has favored us with a copy of the resolutions reported by this section and unanimously adopted by the association, and these impress us as of particular significance in the light of present-day interest in the continuation school, so largely restricted to boys.

> Inasmuch as our infant mortality rate is unnecessarily high (estimated by one federal official as 22d, by another as 18th in the list of 31 civilized countries, although in national wealth we easily lead all), and
>
> Inasmuch as this is largely due to lack of education of young men and women for parenthood, home-making and care of children, and
>
> Inasmuch as the very great majority of pupils leave school before the age when this instruction can be effectively completed, and rarely have a later opportunity of receiving it, being often deprived of proper education in parental homes by occupations, environment, or social conditions,
>
> *Therefore be it resolved* that the American Association for Study and Prevention of Infant Mortality petition each State Board of Education to appoint a Commission on Continuation Schools for Home-Making, to consist of men and women technically qualified in home economics, sociology, school administration and medicine, to study conditions and needs in the state, and to report efficient plans for meeting them through such continuation schools or classes.
>
> *Resolved* that such schools should be conducted wherever possible in model houses or flats, in addition to classroom work; that care of infants, children and the sick be

practiced in connection with homes, day nurseries, asylums, hospitals, kindergartens, visiting nurses, children's summer outings, or in other practical ways.

Resolved that special effort be made to create day continuation schools, as well as, or in preference to, evening schools, and also to secure co-operation of employers in arrangements for part-time schools.

Resolved that the association be requested to continue the discussion of this topic at a future meeting.

Those who are in touch with social and educational problems will agree that the demand for the kind of teaching contemplated in these schools exceeds that for any of the trades represented in our present vocational schools. It may be questioned whether the "Little Mothers" classes in operation in some of our cities—classes in which girls of ten to fourteen years are taught how to wash, dress and feed babies—are of so much value as appears on superficial view. Sociological considerations would suggest that babies need real mothers, while psychological considerations would suggest that ten-year-old girls could more advantageously be taught to be "Big Sisters" or "Mothers' Helpers." The merit and the novelty of the plan proposed in these resolutions lies in part in the postponement of instruction in the problems of motherhood to the period of 16 years and over, when the recipients of the instruction have arrived at the age of possible motherhood, so that the instruction is brought nearer the time when it is needed for use and is given to pupils of maturer and more appropriate stage of mental development.

The curriculum of continuation schools of home-making will be further discussed at the 1912 meeting of the association at Cleveland.

GUY MONTROSE WHIPPLE.

THE VALUE OF JUVENILE LITERATURE IN TEACHING EDUCATIONAL PSYCHOLOGY.

In my article in the December number of the JOURNAL OF EDUCATIONAL PSYCHOLOGY, entitled "The Aims, Values and Methods of Teaching Psychology in a Normal School," I neglected to mention the use that teachers may make of some of the juvenile literature. I find it of great value in my beginning courses in psychology in

getting students interested in children. Such books as Thomas Bailey Aldrich's "The Story of a Bad Boy," Charles Dudley Warner's "Being a Boy," Mark Twain's "The Adventures of Tom Sawyer," Eugene Field's stories and poems, and other numerous sources of this kind are all stimulating. I do not mean to advocate the study of these books in class. A teacher through proper suggestions may easily get students to take home some of these books at the end of the week. In the course of a year countless volumes may be read. Lovers of pure psychology may object to this plan on the ground that it is a prostitution of the science and a dangerous way of teaching psychology. I do not find that erroneous ideas about children are gained thereby to any appreciable extent, and I do know that the reading of this literature gets them interested in their own childhood and in the observation of children. This interest having been once aroused can be *directed* and *trained* along various lines of practical educational psychology.

J. MACE ANDRESS.

State Normal School, Worcester, Mass.

NEEDED RESEARCH ON THE PROGRAMME OF STUDIES.[1]

Many, if not most, of the great problems with reference to the programme of studies have been raised; some have been carefully studied; others have been scarcely touched; and none have been settled in such a way that their solutions offer an accepted guide to practice. The Germans have done most in this field; Winch in England has done something; and Burnham in this country has done a great deal. A list of some of these questions may serve to point the direction which research will have to take.

(1) Which is the better, one or two sessions a day?

(2) What should be the length of sessions for the different grades?

(3) Are shorter sessions for six days of the week better than longer ones for five days?

(4) Are a number of short vacations better than one or two longer ones?

(5) What seasons of the year are most conducive for good school work?

[1]Read at the Wellesley meeting of the New England Association of College Teachers of Education, December 2, 1911.

(6) What are the best days of the week for good school work?

(7) What should be the length of the school year?

(8) What hours of the day are best for hard study?

(9) How does the work of evening classes compare with that of day classes?

(10) How many studies can a pupil pursue in the different grades to his greatest profit?

(11) What should be the length of the recitation in the different grades?

(12) What is the best length of intermission for the different grades? Should it lengthen as day advances? How should the pupil use this intermission?

(13) Should studies of relatively high correlation on the content side be grouped in same term?

(14) What is the *fatigue coefficient* of the different studies? Is mathematics a more fatiguing study than Latin, for example? Ought two or more studies apparently involving great eye strain come together?

(15) What should be the length of the lunch period?

(16) At what time may home study begin? How much and what kind of home study may be demanded?

(17) Should there be formal examination and review periods?

The nature of these questions shows at once how difficult their answers are. The study of fatigue alone will never settle them. The students of this subject today insist on the fact that subjective conditions are no test for the existence of fatigue; and yet these conditions are of vital importance in arranging a schedule of studies. The nature of the child, his physical make-up, his interests and power of attention are all of the highest importance in this matter. It is impossible to determine the fatigue effects of a study without knowing more than the nature of the subject-matter contained in that study: the personalities of the teacher and child must also be considered. The difference between two Latin lessons may be greater on the fatigue side than the difference between a Latin and a drawing lesson. The same might be said regarding the length of recitation: a long recitation under one teacher might tire a child far less than a short recitation on the same lesson in the hands of another teacher.

When one views the questions relative to the programme of studies in the light of all the conditioning factors, one may well doubt

whether some of the problems are not almost impossible of solution. Nevertheless, this is no argument against the scientific attack of these problems. Enough has already been done to show that great good may come from such research. For example, it seems quite well established that in the high school, under average conditions, mathematics and the ancient languages are the hardest studies, and that in the elementary school arithmetic, reading and dictation are harder than drawing and nature study. It seems also to be established that gymnastics is a very fatiguing subject, quite contrary to current opinion. The length of the recitation period for the different ages seems, too, to be on the way to solution: fifteen to twenty minutes for children from six to nine; twenty-five to thirty minutes for children from nine to twelve; thirty-five to forty minutes for children from twelve to fourteen, and forty to forty-five for older children. (Burnham, Second International Congress of School Hygiene. Vol. 1, pp. 35-36.)

However uninviting this field may seem, nevertheless, some of the most important educational problems today are wrapped up in the questions bearing upon the programme of studies. The programme of studies is the course of study functioning. Much study has been devoted to the course of study, but not nearly so much to its functioning. School hygiene, school administration and organization, educational psychology, and even educational theory, await with eagerness research within this more modest and yet more vital topic of the programme of studies. As in method, what is needed here is less talk and more work.

CLAYTON C. KOHL.

Mt. Holyoke College.

RELATIONS OF RESEARCH TO THE WORK OF THE SCHOOLS.[1]

I. In discussing the place of research work with reference to the public schools, it is desirable to make use of analogies with medicine, engineering, scientific agriculture, etc. At present there is a disposition to ask teachers, both in investigation and in applying the results of investigation, to have themselves covered a broad field of scientific study. In medicine the larger problems of research are much specialized. On the other hand, each physician may do a little highly specialized experimenting in the course of his practice, provided the

[1]Memoranda of remarks made at the meeting of the New England College Teachers of Education at Wellesley College, December 2, 1911.

lines are distinctly indicated. The world has only a few great geologists, yet every graduate student can, on the basis of accepted methods, explore a new hillside or ravine, and do it in a way to add to the world's stock of knowledge.

II. The leaders in research work in education must so familiarize themselves with the work of the schools and the necessities of education in general that they can, if necessary, indicate specific problems to the rank and file of teachers, many of whom can make important contributions, both in the field of method and in the field of diagnosis. Many intelligent teachers could study retarded children in the light of a syllabus or analysis made by some competent director. Similarly, with regard to applications of the results of research. These must not only be adapted to the particular problems with which teachers have to deal, but also be couched in language comprehensible by the every-day superintendent and teacher. The success of the great modern research work in agriculture has been largely along these lines. The results of that research are made available for every farmer in the simplest of language and by means of objective presentation. Teachers are eager to discover new and better ways of teaching reading in the first grade, penmanship in the second, or in choosing home reading in the fifth. The research specialist who as a result of his work will be able to offer concrete suggestions here will find a hearty response. Too often we tend to give to these teachers only such general principles as the culture epoch theory, leaving them to make all sorts of speculative and uncertain applications.

III. Probably another step in relating research work to the schools is a conscious separation between those educational processes which lend themselves rather definitely to measurements and exact statement, and those other operations where the results of the trial and error method must still be accepted. Primary reading, spelling and penmanship are tending to go over into the first category. The teaching of reading in the upper grades, however, is yet so ill-defined as to aims and methods, that no very exact analysis is possible. How to teach the multiplication table can be carefully studied, but how to teach the applications of the fundamental processes in the larger problems seems yet to be uncertain territory, where guesswork must prevail. Teachers and educators generally would be helped greatly if the results of research were so presented that a fairly clear distinction could be made between regions where scientific methods now apply and those in which they confessedly do not serve us.

DAVID SNEDDEN.
Commissioner of Education for Massachusetts.

CORRELATION BETWEEN AGES AND GRADES.

The following are the results of an investigation into the ages and grades of the students of the University of Illinois. The data were taken from the records of the registrar and consist of the ages and averages of grades (no less than three grades being considered in any case) made throughout the year 1909-1910 (including the summer session, if attended), by 1306 men and 644 women, all considered in the alphabetical order of their names. The entire number of women enrolled were considered.

The passing grade is 70. Of course, grades given for military and physical training were disregarded because of their invariably high value. All grades below 45 were considered as 45, "failures" as 55, and "absent" from examinations, as 65. The number of grades for each student averaged about 13 or 14. Whenever a student is said to be aged, say 24, we should have in mind for discussion 24.5, for such a student may be anywhere from 24 to 25. It is an interesting fact that for both sexes, cases of extremely isolated and advanced ages showed excellent averages almost invariably. The ages below 31 that occurred for men were 17-30 and for women 18-30. The correlation coefficients between ages and averages of grades were found to be:

Men	r=0.0938—0.0185.
	Mean grade=79.9870.
	Mean age=22.0214+.5=22.5214.
Women	r=0.1996—0.0260.
	Mean grade=80.7842.
	Mean age=22.2826+.5=22.7826.

The results indicate that, on the average, age has a little but a very little favorable effect on scholarship between the ages considered. Both coefficients, though small, are well beyond the probable error.

It seems rather significant that the coefficient for women has more than twice the value of the one for the men. This would suggest, at least, that, if age is an asset in scholarship, it is more so for women than for men.

A comparison of mean or average grades results a little in favor of the women, but perhaps not as much as the champions of the women would claim. It is somewhat surprising to find the average age of the women to exceed that of the men, especially in a state university where students of agriculture and law are included in the investigation.

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NOTES AND NEWS.

MERIT IN TEACHING.

In connection with the new "equal pay" salary schedules, the Board of Education of New York City has adopted new conditions for salary increases to high school teachers. The permanent license will be given, as at present, after a probationary period of three years, and this will ensure the annual increase of $150 for a further period of three years. In order to have the increase continue, the teacher at the end of the sixth year must satisfy the authorities that his services are worthy of the qualification "fit and meritorious," and at the end of the ninth year a more searching inquiry is made for the award of the distinction of "superior merit." If all requirements are satisfied the teacher attains the maximum salary, $2650, at the end of the tenth year. While the work of the teacher is under the immediate supervision of the principal and the associate superintendent in charge of high schools, the determination of the qualifications "fit and meritorious" and "of superior merit" rests with the Board of Examiners. This raises the very practical question, how can a board that knows nothing of the daily work of a teacher determine the efficiency of that teacher's service? Can tests of efficiency similar to the Binet tests be devised? What are to be the criteria of merit? Can the matter be determined by a written examination, such as that on which the board chiefly relies for the granting of licenses? As one high school principal emphatically remarked, the one who passes the best examination is by no means invariably the one who makes the best teacher. At present the Board of Examiners seems wisely disposed to leave the matter to the judgment of the principals. J. C. B.

The publishers of Hyde, "Self Measurement," desire us to state that they consider the mimeographing of a table from that book an infringement upon their copyright. This statement is made with reference to our review, this JOURNAL, Vol. II, p. 583. C. E. S.

In an interesting article in *Science,* January 19, Dr. Fisher of the

Department of Physics at Cornell University throws some new light on the question of the popularity of science in high schools. His method has been to compute numerically the opportunity which the average student has to take a given study and compare this with the amount to which he takes advantage of his opportunity, and thus to secure in the ratio of these two quantities a measure of the popularity of each study. He concludes that, "in spite of general impression to the contrary, American boys and girls like the sciences, both exact and natural, better than they like the languages, *provided they only have as good a chance to get at them;* and the way to save the situation for science is to give them the chance early in the course."

The Education Committee of the London County Council have agreed to recommendations of the Education Subcommittee in support of the principle of holding classes for delicate and other suitable children in the playgrounds of selected schools, or in parks and open spaces near selected schools, and that for 1912-13 the sum of $4500 be expended on the work. Inspectors and head teachers had reported in favor of the experiments already tried in this direction. Where they were taught under open-air conditions it was found that the children were fresher toward the end of the school session, suffered less from colds and minor ailments necessitating absence from school, that there was less dullness and sleepiness, and that the activity, carriage and appearance of the children dealt with had improved. Mentally the children were more alert, and gripped their work better.—*The Educational Times.*

The Fifteenth International Congress on Hygiene and Demography will be held at Washington, D. C., September 23-28, 1912. The President of the United States will be Honorary President of the Congress, and the Department of State has assumed the responsibility of the conduct of the Congress. An exhibition, to be held at the same time with the meetings, will show the recent progress and the present status of the public health movement in the co-operating countries, and especially in the United States. The provisional program of Section III (Hygiene of Infancy and Childhood and School Hygiene) displays an elaborate list of topics, covering hygiene of the home, of the school child, of the school building, of instruction, of the teacher, of open-air schools, hygiene with relation to physical

defects, etc. This section is under the presidency of Dr. A. Jacobi, with Dr. L. H. Gulick as secretary.

The problem of sex education occupies attention in Italy as it does elsewhere. At a recent congress at Florence, where the topic was discussed, the participants endorsed the principle of incorporating instruction in sex in the curricula of existing institutions for the purpose of supplementing the neglected or inadequate home instruction in these matters. The congress revealed differences of opinion as to the type of instruction needed. According to Foa, a knowledge of the physical and social consequences of sexual activity would be sufficient to develop responsibility. According to Prezzolini, this knowledge would not be efficacious without preliminary moral training of the sense of responsibility. Wegener warned of the danger attending instruction in sex by persons who lacked the training and sympathetic knowledge of the teacher. Mayer believed that "flirting" (in the sense of frank and open friendships between individuals of the two sexes, especially as favored by coeducation) was a valuable preventive of degrading love affairs. Assagioli urged the use of the psycho-analytic method of Freud and Ewald to sublimate and turn to profit the valuable energy of sex, saying that the sex instinct may be diverted and utilized, but may not be cheated by illusory satisfaction, nor combatted and repressed as something bestial. Wagner's account of the genesis of Tristan and Isolde was cited as an illustration of the sublimation of the sex instinct to esthetic creation.

According to the report of G. Francia in a recent number of the *Rivista di Psicologia Applicata*, marked success has attended an experiment in colonization of young criminals and mental defectives. Moral regeneration was sought through work, collaboration in the tasks of the household under conditions similar to those obtaining in family life, with the occupations freely chosen so far as possible and adapted to the attainments of the participants. The presence of both sexes proved to have a good effect upon manners and speech.

The seventh annual meeting of the New England Association of College Teachers of Education was held at Wellesley College, Saturday, December 2, 1911. The meeting was presided over by Professor Anna J. McKeag, head of the department of education, Wellesley

College, and had as its general subject Research in Education. At the morning session the following papers were read: Needed Research in Method and in the Programme of Studies, Dr. Clayton C. Kohl, Mt. Holyoke College; Needed Research in Administration, Professor Walter B. Jacobs, Brown University; Methods of Research, President Edmund C. Sanford, Clark College. At the afternoon session Professor W. Van Dyke Bingham, Dartmouth College, discussed The Possibility and Value of Research by Students, and Dr. David Snedden, Massachusetts Commissioner of Education, spoke on The Relations of Research to the Work of the Schools. Dr. Kohl's shorter paper and an abstract of Dr. Snedden's remarks will be found in another section of this issue. President Sanford's paper and Dr. Kohl's discussion of research in method will appear in subsequent issues.

There has been established in Geneva an Institute for the Science of Education, which will be opened October 15, 1912. The aim of the institute is to furnish a complete orientation on all questions pertaining to education, taking as a basis the psychology of the child, and to centralize and co-ordinate such observations and experiments as will advance the science of education. M. Pierre Bovet, professor of philosophy and pedagogy at the University of Neuchatel, has been chosen director of the institute, and Prof. Ed. Claparède, director of the psychological laboratory at the University of Geneva, will give instruction in psychology. Anyone who intends to take up the vocation of teaching will be accepted as a pupil at the institute.

The Prussian educational authorities have decided to establish a pedagogical seminary at Halle. It is understood that Prof. Fries, director of the Francke Institution, will probably be offered the position of director of the seminary.

The Institute for Experimental Pedagogy and Psychology, founded by the Leipzig Teachers' Association, is meeting with well deserved success. The attendance at the courses shows a steady growth, and the number of courses offered is constantly increasing. An important feature of the institution's work will be a series of weekly discussions during February and March on the "Fundamental Concepts of Psychology," considered from the point of view of the teacher. A

gratifying number of experimental investigations of educational problems are in progress, and the results will be published in due season. Non-residents may become associate members, receiving all the publications of the institute, on payment of 20 marks annually. Remittances should be made to Lehrer Paul Schlager, Leipzig-Gohlis, Lothringerstr. 79.

The Wisconsin state normal schools have installed two-year college courses in co-operation with the state university. The purpose of these is to reduce the attendance in the freshman and sophomore years at the university. It is expected that these courses will not interfere with the professional work of the normal schools, but will rather reinforce it. The plan brings opportunities for higher education nearer the homes of the people than would be possible otherwise. It is intended that certain of the schools will give the first two years' work of the literary course, while others will offer the first two years of the engineering course, or of the course in agriculture. The success of the plan will be watched with much interest—*Western Journal of Education.*

The primary school teachers of the Canton of Neuchâtel, Switzerland, have published an important report in which they call for a complete reorganization of the studies leading to the profession of teaching. They demand especially that serious instruction in psychology and child physiology be introduced into the normal schools.

On Wednesday, December 27, 1911, there was held at Baylor University, Waco, Texas, the first Conference of Texas Teachers of Philosophy and Psychology. The topics considered at the meeting were (1) Reports from colleges on teaching and on work in progress; (2) The philosophy of Henri Bergson; (3) Discussion: "How to popularize philosophy in Texas colleges"; (4) General intelligence and a sex difference; and (5) Discussion: "The place of psychology in the college curriculum."

Prof. Bird T. Baldwin, of the University of Texas, is making an interesting comparative study of 200 individual growth curves, showing the increase in height, weight, and lung capacity of the same group of children during their scholastic age. The results frequently show a decided difference between chronological and

physiological age, and indicate that children below the average height almost invariably weigh less and have less lung capacity. The details of the investigation will appear in a special bulletin of the United States Bureau of Education.

In a recent number of the *Journal für Psychologie und Neurologie* (Bd. 17, H, 3-4.) R. Henneberg has reported the results of some interesting comparative measurements of the superficial area of the cerebral cortex. Examination of three European brains showed an average for a single hemisphere of 111,300 sq. mm., while the total free surface of the two hemispheres averaged 79,288 sq. mm. This confirms Wagner's law that the free surface is to the portion concealed in the sulci as 1:2. The exact figures in each case were 1:1.832, 1:1.966, and 1:2.226. The brains of a Javanese, a Hottentot, and a Herero showed the ratios of free surface to involuted cortex to be 1:1.792, 1:1.5845, and 1:1.464 respectively. The ratio of the area of the three frontal convolutions to the total area was as follows: European I, 1:3.118; European II, 1:3.676; European III, 1:3.751; child of five months, 1:3.696; Hottentot, 1:3.094; Javanese, 1:3.255; Herero, 1:3.740; a general paralytic, 1:3.577; a senile dement, 1:4.140. It will be seen from this that the largest relative frontal area is shown by the Hottentot.

In a recent series of lectures and discussions arranged by the Child Study Society, London, the following subjects were considered: "Co-education during adolescence," "Psychology and grammar," "Psychology of speech," "Psychology of reading," and "Psychology of mathematics."

The school census of the Sate of Wisconsin, on the basis of which the state school fund is apportioned, shows the surprising fact that "there are 6,236 fewer persons of school age reported for the year ending June 30, 1911, than for the year ending June 30, 1910. The loss in the number of persons of school age is pretty well distributed over the state. Excluding cities under city superintendents, only 24 of the 71 counties show a gain. Of the 68 cities under city superintendents 38 show a gain in school population."—*Science.*

The officers of the first International Eugenics Congress, to be held at the University of London, July 24-30, 1912, hope that the

congress will result in a far wider recognition of the necessity for an immediate and serious consideration of eugenic problems in all civilized countries. The proof of this necessity must be based on the laws of heredity, on the history of the changes in racial characteristics in the past, and on what is known concerning the effect of all the many biological and social factors which tend either to improve or deteriorate the innate qualities of mankind.

Figures prepared by the Bureau of Education indicate that the public school system, as measured by value of property, money expended and number of teachers employed, has nearly doubled during the decade 1900 to 1910. The number of high school teachers increased from about 20,000 to more than 41,000, and annual expenditures to normal schools for the training of teachers from $2,769,000 to $6,620,000 during the decade.

The Minnesota Legislature, during the session of 1911, made an annual appropriation of $5000 for each of the two following years for "Clinical and Scientific Work for the Hospitals for Insane, School for Feeble-Minded and Penal Institutions." The expenditure of this money is to be made under the direction of the State Board of Control. This board appointed a committee to report upon the best method of procedure. The committee unanimously recommended that the initial work be started at the School for Feeble-Minded and Colony of Epileptics, and that one field worker should be secured and started immediately. Miss Saidee Devitt was placed in the field in October, 1911. Up to the present time she has done the preliminary work on 25 cases, six of which have been carefully charted. So far as the work has proceeded and a knowledge of what is proposed has been disseminated, the reaction of public sentiment has been sympathetic and favorable.

A law enacted by the State of New Jersey during the session of 1911 provides that "The Commissioner of Education shall prescribe such method as to him may seem best for use in ascertaining what children are three years or more below the normal."

It is stated in the daily press that Mrs. Ella Flagg Young, superintendent of schools in Chicago, is preparing a course in "sane physiology" for young boys and girls. In 56 of the Chicago schools the girls are being taught the care of babies and young children.

Dr. Edmund B. Huey, recently appointed lecturer on mental development in Johns Hopkins University and assistant in the Phipps Clinic in the hospital, is delivering a series of weekly public lectures on backward and feeble-minded children, and related phases of clinical psychology. The course includes a discussion of the status of clinical psychology, the classification of backward and feeble-minded children, the use of the Binet scale with illustrations from clinical practice, unstable, dull and epileptic children, language disturbances, high grade defectives, growth and recapitulation, the effects of environment upon mental development, play and work, the social aspect of mind, the nature of intelligence, character, disposition, and infantilism and retardation. The course has reference, on the one hand, to the needs of social workers, physicians, teachers, and others who have to do with defectives; and, on the other hand, to the more theoretical interest in these problems by students of psychology, sociology and education.

Dr. E. G. Cooley, of Chicago, has been giving a series of lectures at the University of Illinois on "Vocational Education in Germany." Dr. Cooley recently visited Germany as the representative of the Chicago Commercial Club, and made a careful and thorough study of German vocational conditions and the means employed to secure vocational training.

On Monday, January 8, Prof. Lester M. Ward, of Brown University, delivered an address before the Phi Beta Kappa of Wellesley College on "The Education Which Educates." On the same day Dr. David Snedden, Commissioner of Education in Massachusetts, spoke to the students on "Problems in Education."

President G. Stanley Hall, of Clark University, delivered the address at the inauguration of Dr. George E. Myers, principal of the State Manual Training Normal School at Pittsburg, Kan. The subject of the address was "Educational Efficiency."

Prof. Ernst Dürr, who recently edited the second edition of Grundzüge der Psychologie, Vol. I, by the late Hermann Ebbinghaus, now promises the completion of Vol. II, only the first section of which had been issued at the time of the author's death. The publishers, Veit and Co., Leipzig, state that the volume will comprise seven or eight numbers, at M. 1.80 each.

At the recent meeting of the American Psychological Association in Washington Prof. Edward L. Thorndike, of Teachers' College, Columbia University, was elected president for the ensuing year. Prof. J. McKeen Cattell, of Columbia University, was elected vice-president of Section L (Education), of the American Association for the Advancement of Science.

It is stated that Professor Theodor Ziehen, director of the psychiatric and neurologic clinic in Berlin, will resign his position at the end of the winter semester and discontinue all medical work, in order to devote himself exclusively to research in psychology. For this purpose he will remove to Wiesbaden, where he will erect for himself a private psychological laboratory.—*Science.*

Professor Hugo Münsterberg of Harvard University delivered the second series of lectures on the Ichabod Spencer foundation at Union College. Professor Münsterburg chose as his subject "Applied Psychology."

Dr. Anna J. McKeag, president-elect of Wilson College, Chambersburg, Pa., assumed the duties of her new position on February 1. President McKeag's official inauguration will take place about May 1.

Professor E. A. Kirkpatrick, State Normal School, Fitchburg, Mass., has been given a half year's leave of absence, which he will spend in Europe studying educational conditions. It is to be hoped that the college custom of granting sabbatical leave of absence will be extended more generally to normal schools.

Professor John B. Watson of the Johns Hopkins University has recently been granted a three years' appointment as a research associate of the Carnegie Institution of Washington.—*Journal of Philosophy, Psychology and Scientific Methods.*

Dr. J. E. Wallace Wallin, who has been engaged recently in the clinics of Johns Hopkins Hospital, and in New York City in the study of special defectives, juvenile defectives and various types of mental defectives, has been appointed assistant professor of educational psychology and director of the psychological clinic in the School of Education of the University of Pittsburgh. A department

of clinical psychology has recently been established at the University, and will be devoted largely to the psycho-clinical examination of defective children. Professor Wallin will enter upon his new duties March 1.

A. W. Nolan, formerly of West Virginia University, has been appointed assistant professor of agricultural education in the University of Illinois.

Dr. Edward D. Sisson, recently head of the department of education at the University of Washington, has been appointed professor of education in the newly established Reed College, at Portland, Ore.

The Dartmouth Summer School is to be reorganized and incorporated as an integral part of the institution's scheme of education. The standards of the regular session will apply to the summer session as well, and equal credit will be given for equal work done. Dr. W. V. D. Bingham, director of the psychological laboratory, and professor of psychology and education, will be the director of the summer session, and courses in methods of teaching and in school management will be given by Associate Superintendent C. E. Meleney, and District Superintendent D. C. Bardwell, of New York City.

Dr. George H. Mount has resigned his position as instructor in psychology in the Northern Michigan State Normal School to accept an assistant professorship in the Iowa State Teachers' College. He is succeeded at Marquette by Gilbert F. Brown of the University of Wisconsin and of Harvard University.—*Western Journal of Education.*

Mr. Floyd B. Jenks, assistant professor of agricultural education in the Massachusetts Agricultural College, has accepted an appointment in the United States Bureau of Education.

Dr. Rudolph Acher, University of Indiana and Clark University, has been appointed instructor in psychology in the State Normal School at Valley City, N. Dak.

Associate Professor Samuel C. Parker has been made dean of the College of Education of Chicago University.

PUBLICATIONS RECEIVED TO FEBRUARY 1, 1912.

(Notice in this section does not preclude a more extended review).

MANUEL VELAZQUEZ ANDRADE. *Pedagogia de la Educacion Fisica.* Mexico: Castillo, 1911. Pp. 23.

A comparison of the pedagogical principles underlying the German, French, American and Swedish systems of gymnastics shows a fundamental agreement in that all are based upon the biological conditions of growth. From a practical point of view the Ling system is considered superior.

LEONARD P. AYRES. *The Identification of the Misfit Child.* Reprinted from the American School Board Journal, December, 1911. Pp. 11.

Neither the age-grade criterion nor the progress criterion alone is an adequate indication of retardation. A study of the school children of 29 cities, in which both age and progress were determined, shows that some cities stand high in the age classification, but low in the progress classification, and vice versa. A more satisfactory basis is afforded by combining the ratings obtained from the two methods.

LEONARD P. AYRES. *The Money Cost of Repetition versus the Money Saving Through Acceleration.* Reprinted from the American School Board Journal, January, 1912. Pp. 11.

A study of school statistics from twenty-nine cities. The balance of retardation over acceleration is computed in terms of cost to the taxpayers, and the conclusion is drawn that the latter are not getting their money's worth. The reason for this is that the schools are at present adjusted to the bright, rather than to the average, child. We cannot rid ourselves of the feeling that the result of such studies will be to bring pressure to bear upon the teacher to promote pupils, regardless of their fitness. What we need is not more rapid promotion, but a more careful study of the individual child.

LEONARD P. AYRES. *The Relative Responsibility of School and Society for the Over-age Child.* Reprinted from the Journal of Education, December 21, 1911. Pp. 6.

A study of 206,495 school children in twenty-nine cities shows that 37 per cent. of them are above the normal ages for their grades. Thirteen per cent. of the cases were caused by late entrance, and for these society must be held primarily responsible. The school must explain the cases of the 17 per cent. who made slow progress, and

school and society together must account for the remaining 7 per cent.

WILLIAM CHANDLER BAGLEY. *Educational Values.* New York: The Macmillan Company, 1911. Pp. xx, 267. $1.10 net.

Education involves a modification of conduct in accordance with certain standards or ideas of value. What are these values and in what way can they be made effective in determining conduct? Such is the fundamental inquiry of this book. Before the question can be intelligently attacked the psychological controls of conduct must be examined, and to this the author devotes the first six chapters. In the second part of the work a careful distinction is made between function and value, the chief classes of functions are enumerated, and a detailed analysis is given of the values which are to be realized in fulfilling each type of function. The book stimulates reflection on many important problems of education.

BIRD T. BALDWIN. *Adolescence.* Reprinted from Psychological Bulletin, 8: No. 10, Oct. 15, 1911. Pp. 351-362.

An extended survey of recent literature on this subject.

BIRD T. BALDWIN. *Notes on School Observation. The Physical Nature of the Child.* Bulletin of the University of Texas, June 22, 1911. Pp. 26.

Among the topics emphasized as important for school observation are height, weight, chest girth, lung capacity, head girth, cephalic index, asymmetry, posture, teeth, enlarged tonsils, adenoids and other obstructions, nutrition, vision and hearing. Brief and concise directions are given for making observations on each of these topics.

MAURICE A. BIGELOW. *Biology in Relation to Sex Instruction in Schools and Colleges.* Reprinted from the Journal of Social Diseases, October, 1911. Pp. 6.

Instruction in biology may, and should, contribute to sex education by developing a proper mental attitude, by imparting fundamental information, and by pointing out various practical hygienic applications of physiology and bacteriology. Yet biology affords only a partial contribution: psychology, ethics, sociology and esthetics are quite as important, and the sex problem is complex.

FREDERICK G. BONSER. *Fundamental Values in Industrial Education.* Teachers' College Bulletin, Nov. 18, 1911. Pp. 20 Ten cents.

The author shows in some detail how the materials of the indus-

trial arts may be used to advantage in elementary education, with the result that the whole curriculum would be revitalized, and the child be brought into closer touch with our great social and industrial evolution.

WILLIAM BOYD. *The Educational Theory of Jean Jacques Rousseau.* London and New York: Longmans, Green & Company, 1911. Pp. xiv, 368.

This book will be reviewed in a later number of the JOURNAL.

H. D. COOK UND M. V. FREY. *Der Einfluss der Reizstärke auf den Wert der simultanen Raumschwelle der Haut.* Reprinted from Zeitschrift für Biologie, 1911, Bd. 56. Pp. 537-573.

A very careful study of the effects of simultaneous stimuli upon the skin. Strong stimuli seem farther apart than weak, and give a fairly constant space threshold, which has little dependence on practice, but shows wide individual variations. The paper is of importance in evaluating aesthesiometric studies of fatigue.

JOHN T. DALE. *Heroes and Greathearts and Their Animal Friends.* New York: D. C. Heath & Co., 1911. Pp. x, 240. 60 cents.

A profusely illustrated reader for younger children, in which the dominant thought is the kindness to animals shown by the great men of history and literature. In the effort to be simple the author employs a literary style which is often trivial.

JEAN DAWSON. *The Biology of Physa.* Behavior Monographs, No. 4. New York: Henry Holt & Co., 1911. Pp. iii, 120. $1.50.

"The physiological state of Physa varies with its experience; and its experience varies with the environment. The greater the variety of experience to which it is accustomed, the more readily it may be approached without producing the physical reactions which are a correlate to the physical state of fear in the higher animals, and the more readily it is tamed."

L. DONCASTER. *Heredity in the Light of Recent Research.* (Cambridge Manuals of Science and Literature.) New York: G. P. Putnam's Sons, 1911. 40 cents net.

In ten brief chapters, which, together with a glossary, list of books and index, cover only 143 pages, the author has set himself the difficult task of a simple and well-balanced presentation of a complex and imperfectly-known topic. The style is lucid, the field is well covered, and the different aspects of the problem carefully pointed out. At some points it seems a little complex for the elementary student. Possibly this is unavoidable in so complex a field and so brief a text.

F. P. GRAVES. *Great Educators of Three Centuries.* New York: The Macmillan Company, 1912. Pp. x, 289.

Fourteen essays treating in chronological sequence the principal educational movements of modern times and the men who stood sponsors for them. The book is well adapted to reading-circle purposes; this means, not that it is superficial, but that it is very clearly written and carefully organized.

MAXIMILIAN P. E. GROSZMANN. *Some Fundamental Verities in Education.* Boston: Badger, 1911. Pp. xix, 118. $1.00 net.

This little book comes highly recommended with a four-fold introduction by Frederick E. Bolton, W. G. Chambers, A. B. Poland, and H. H. Horne, and makes a plea for manual culture and sense training on the one hand and art culture and art expression on the other. There are several illustrations of children's drawings, and of modeling in clay.

FLORENCE HOLBROOK. *Cave, Mound and Lake Dwellers and Other Primitive People.* New York: D. C. Heath & Co., 1911. Pp. vii, 130. 40 cents.

This excellent little book gives in clear, attractive style, well adapted to young people, the essential features of what we know about primitive man. The book is profusely illustrated.

PAUL R. JENKS. *A Manual of Latin Word Formation for Secondary Schools.* New York: D. C. Heath & Co., 1911. Pp. v, 81.

A systematic presentation of the different affixes which enter into the formation of Latin words, illustrated with copious examples drawn from the texts usually read in the high school. The exact location of each example is indicated.

WILLIAM MCDOUGALL. *Body and Mind.* New York: The Macmillan Company, 1911. Pp. 379.

A comprehensive discussion of the relation between body and mind, and a defense of animism. Review to follow.

WILHELM OSTWALD. *Monistische Sonntagspredigten.* Leipzig: Akademische Verlagsgesellschaft, 1911. Pp. 208. M. 1.

These little sermons by a great scientist give a good picture of the attitude taken by an increasing number of scientific men toward religious questions. Among the titles are "How did evil come into the world?" "Religion and Science"; "What is truth?" "Immortality"; "The Evolution of God"; "Prayer."

A. Pabst. *Moderne Erziehungsfragen.* Leipzig: A. W. Zickfeldt, 1911. Pp. 206. M. 3.40. Geb. M. 4.00.

A series of papers on manual and industrial education, originally published in various periodicals, and here collected in book form. The book contains a large number of illustrations drawn chiefly from American sources, and the articles call attention to many points in English and American school procedure from which Germans might profit.

A. C. Perry, Jr. *The Status of the Teacher.* Riverside Educational Monographs. Boston: Houghton-Mifflin Co., 1912. Pp. 78. 35 cents.

An analysis of the ethical and legal bases of the teacher's authority and responsibility. Dr. Perry has rendered a valuable service in preparing this monograph. Teachers could not find a more important lesson in "civics" to pass on to their pupils than the distinction between the citizen as "subject" and the citizen as "sovereign," which Dr. Perry treats admirably in two brief paragraphs (pp. 8-9).

Edwin S. Richards. *Primary Speller.* New York: D. C. Heath & Co., 1911. Pp. iv, 124.

It is very doubtful whether the practices recommended in this book, such as teaching stems in the first grade and blend drills in the second grade, are psychologically justifiable.

Geoffrey Smith. *Primitive Animals.* Cambridge: University Press, 1911. (Cambridge Manuals of Science and Literature.) Pp. vi, 156. $0.40 net.

A typical representative of this excellent series of manuals. The book is written chiefly from the point of view of the comparative morphologist, with side-lights from embryology and paleontology. After brief discussions of the animal kingdom as a whole and of the origin of life, successive chapters are devoted to the Appendiculate Phylum; Embryonic and Larval Histories; the Ancestry of the Vertebrates; the Origin of the Land Vertebrates; the Rise of the Mammalia, and the Future of Animal Life. In the last chapter the author touches briefly upon the differences between social and physical heredity, recognizing that progress in civilization has depended "far more upon a continuity in tradition than upon anything analogous to the process of organic evolution"; but maintaining that evolutionary factors play a part even here, for man, by "consciously creating his own environment, which we call civilization, sets a standard by which certain types are selected for survival and others are eradicated." In this connection he indorses the general principles advanced by the Eugenists.

WILLIAM STERN. *Die Differentielle Psychologie in ihren methodischen Grundlagen.* Leipzig: Barth, 1911. Pp. 503. Mk. 11, geb. Mk. 12.

This ambitious and instructive book is put forth by the author in lieu of a second edition of his *Psychologie der individuellen Differenzen*, which appeared eleven years ago. The treatment in the earlier work was primarily a sketch of a tentative program, but so remarkable has been the progress during the last decade that the present volume is not programmatic in purpose, but rather a formulation of the basal principles of individual psychology, considered as a special scientific discipline. To be reviewed.

CLARA HARRISON TOWN, PH.D. *Congenital Asphasia.* Reprinted from the Psychological Clinic, 5: November, 1911. Pp. 167-179.

Though congenital cases of asphasia were noticed and reported as early as asphasia itself, few of them have been utilized as studies. Miss Town cites the few cases in the literature, and describes two under observation at Lincoln, Ill.

JOSEPH KING VAN DENBURG, PH.D. *Causes of the Elimination of Students in Public Secondary Schools of New York City.* New York: Teachers College, Columbia University, 1911. Pp. iv, 206. $1.50.

A very important intensive study of the question, "Why do pupils leave the high school?"

JOHN H. WALSH. *An Introductory Algebra.* New York: D. C. Heath & Co., 1911. Pp. ix, 214.

The object of this book is to furnish pupils who drop out of school at the end of their first year in the high school with such a knowledge of algebra as will be of use to them in the practical problems of life. The doubt may be hazarded whether the energy expended in learning the new vocabulary of literal equations might not be put to better use in a study of commercial and industrial arithmetic.

TH. ZIEHEN. *Das Verhältnis der Herbartschen Psychologie zur physiologischexperimentellen Psychologie.* Second edition, enlarged. Berlin: Reuther & Reichard, 1911. Pp. iv, 88. M. 1.80.

This monograph was originally written at a time when German educational psychology was almost wholly Herbartian, and in it the author set forth the reasons why the Herbartian point of view was certain to be superseded by the experimental. That prophecy has now been realized, but the monograph is still valuable, particularly in its revised form, on account of the admirable way in which it sets forth an important transition movement in the progress of educational thought.